

Rec'd PCT/EP 06 MAY 2005

PCT / IB 0 3 / 0 4 6 6 5



Europäisches  
Patentamt

European  
Patent Office

Office européen  
des brevets

21 OCT 2003

REC'D 27 OCT 2003

WIPO

PCT

Bescheinigung

Certificate

Attestation

Die angehefteten Unterla-  
gen stimmen mit der  
ursprünglich eingereichten  
Fassung der auf dem näch-  
sten Blatt bezeichneten  
europäischen Patentanmel-  
dung überein.

The attached documents  
are exact copies of the  
European patent application  
described on the following  
page, as originally filed.

Les documents fixés à  
cette attestation sont  
conformes à la version  
initialement déposée de  
la demande de brevet  
européen spécifiée à la  
page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

02079687.6

**PRIORITY  
DOCUMENT**  
SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH RULE 17.1(a) OR (b)

Der Präsident des Europäischen Patentamts;  
im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets  
p.o.

R C van Dijk



Anmeldung Nr:  
Application no.: 02079687.6  
Demande no:

Anmeldetag:  
Date of filing: 11.11.02  
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

Koninklijke Philips Electronics N.V.  
Groenewoudseweg 1  
5621 BA Eindhoven  
PAYS-BAS

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:  
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.  
If no title is shown please refer to the description.  
Si aucun titre n'est indiqué se référer à la description.)

Electric reflector lamp

In Anspruch genommene Priorität(en) / Priority(ies) claimed / Priorité(s)  
revendiquée(s)  
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

Internationale Patentklassifikation/International Patent Classification/  
Classification internationale des brevets:

F21V/

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of  
filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

Electric reflector lamp

EPO - DG 1

11.11.2002

(94)

The invention relates to a process for assembling an electric reflector lamp comprising: moulding a hollow reflector body having an optical axis and having a neck-shaped portion with a transverse wall provided with at least one opening; providing a light source, and arranging the light source in the reflector body; electrically connecting the light source to a lamp cap provided with contacts with a current conductor comprising a pliable material, running through the opening in the transverse wall.

Such a reflector lamp is known from WO 96/07193.

During assembly of the known electric reflector lamp the position of the light source is arranged in the reflector body to be optimal with the reflecting properties of the body. The current conductors running through the openings in the transverse walls are secured in place by crimping to brass bushings clamped in the neck part of the reflector in the transverse wall. This locks the light source in the axial direction. The lamp cap is then connected to the current conductor or the bushings.

Such bushings are also known from EP 0491432.

A drawback in the assembly of these reflector lamps is, however, that the bushings are not well fixed due to thermal expansion differences between the glass and the brass.

It is an object of the invention to provide a process of assembling an electric reflector lamp in which the position of the light source is secured without experiencing the thermal expansion differences.

According to the invention, this object is achieved by securing the position of the light source in at least one longitudinal direction by bending the conductor around at least a portion of the outer transverse wall. This results in leaving out the bushings during assembly, so that no thermal expansion differences can occur. Bending the conductor is possible due to the pliability of the material. The current conductor comprises for example a metal or another flexible conducting material.

In the preferred embodiment the position of the light source is secured parallel with the direction of the optical axis with a mounting member. The mounting member arranges and secures the position of the light source in line with the optical axis.

In the preferred embodiment the position of the light source in the longitudinal direction is secured by resting the mounting member on the inner conical contour of the neck. The conical contour causes a fixation of the mounting member in the neck on one side. The bended conductor secures a fixing in the other longitudinal direction. The inner neck portion  
5 can be provided with references that cooperate with the mounting member securing the alignment with the optical axes.

The invention also relates to an electric reflector lamp comprising:

- a hollow moulded reflector body having an optical axis and having a neck-shaped portion with a transverse wall provided with at least one opening;
- 10 a lamp cap provided with contacts and connected to the neck-shaped portion;
- a light source in a lamp vessel with a seal, arranged in the reflector body and electrically connected to the contacts of the lamp cap by means of current conductors comprising a pliable material, running through the opening in the transverse wall;
- 15 a securing means for securing the position of the light source in the longitudinal direction.

Such an electrical reflector lamp is known from WO 96/07193. In the known lamp the securing means comprises bushings crimped to fixate the conductor and the light source in the longitudinal direction, wherein the bushings are clamped in the openings of the  
20 transverse wall.

According to the invention the current conductor forms the securing means. This saves the use of the bushing and overcomes with thermal expansion differences occurring between the bushings and the glass of the lamp.

In a preferred embodiment the conductor comprises a bending. In the preferred  
25 embodiment the conductor is at least partial adjacent or parallel to the outer transverse wall. The bending in the conductor causes the conductor to secure the position of the light source in at least one longitudinal direction. The bending fixates the light source by prohibiting the distance between the transverse wall and the light source to enlarge. Since the conductor comprises a pliable material, a bending can be applied.

30 In a favourable embodiment the conductor comprises a deformable material. This causes the bending to more permanent and sustainable.

The electrical reflector lamp may comprise a mounting member, preferably metal, for securing the position of the light source parallel with the optical axis. In the preferred form the mounting member is arranged around the seal of the lamp vessel. The

mounting member can be mounted in the neck-shaped portion. The mounting member aligns the light source with the optical axis. The mounting member comprises a bore in which the seal of the light source, for example a lamp vessel, is accommodated. The mounting member is a substantially flat plate. The mounting members mounted in the neck-shaped portion.

5 In the preferred embodiment the securing means for the light source parallel with the optical axis, comprises the mounting member and the inner conical portion of the neck. The inner conical wall of the neck is provided with references, which work together with the mounting member. The mounting member can be arranged in the conical neck and can sink in the neck until the diameter of the mounting member is substantially equal with the  
10 diameter of the neck. This secures the positioning in one direction along the optical axis. Securing in the other direction is performed by the bending in the connection wire.

It is noted that e.g. securing the longitudinal position by connecting the conductor to the lamp cap doesn't make the conductor a securing means, the connection in this case would be the securing means. According to the invention the conductor itself forms  
15 the securing means. The conductor replaces the connection, e.g. the bushing.

An embodiment of the electric reflector lamp is shown in the drawing, in which;

Figure 1 is an axial section of the lamp;

Figure 2 shows the lamp of figure 1 rotated through 90°.

20 In figure 1 and 2 the electric reflector lamp 1 has a hollow moulded reflector body 2, for example moulded from glass, with an optical axis 3 and a neck-shaped portion 4. The reflector body, has for example internally, a mirror coating, for example a vapour deposited aluminum layer 5, but alternatively a dichroic mirror. The reflecting surface is smoothly curved. Alternatively, however, it may be faceted or subdivided into, for example,  
25 axial lanes. The reflector body 2 is closed off by a lid 6, for example made of moulded glass, which is fixed, for example with cement. A lamp cap 7 provided with contact 8,9 is connected to the neck-shaped portion. A light source 10 is arranged in the reflector body 2 and electrically connected to the contacts 8,9 of the lamp cap 7 by means of current  
30 conductors 11, 12. In the figures, the light source 10 is an incandescent body 10 in a gas comprising halogen in a lamp vessel 13. The current conductors 11,12 run through respective openings 14, 15 in a transverse wall 16 in the neck-shaped portion 4. The neck-shaped portion 4 has a bit 17 into which the lamp cap 7 is dimpled so as to be securely fixed. The lamp vessel 13 has a seal 18 which is accommodated in a metal mounting member 19, a substantially flat plate in the figures. The mounting member 18 is mounted in the neck-

shaped portion 4, which inner walls conically shaped. This is also preferable for the disengagement of the body from the mould in which the body is formed.

On the outer side of the transverse wall 16 part of electric conductor 11 runs adjacent to the outer wall. Near the opening 14 the electric conductor shows a bending. The  
5 deformable character of the conductor prevents the wire from returning to a straight form.

When assembling the reflector lamp the light source 10 is introduced into the neck of the body 2 according to arrow 20. The mounting member 12 is in place round the seal 18. The mounting member 19 works together with the conical inner side of the neck-shaped portion 4. Light source 10 is in line with the optical axis 3. Continuing the movement  
10 according to arrow 20 is prevented at a certain stage by the conical neck. The light source is than in a position parallel with the optical axis. The light source 10 can only be moved in a direction opposite to arrow 20.

The connecting wires 11 and 12 extend through the openings 14 and 15, before the lamp cap 7 is arranged. When the light source 10 is in place and cannot be moved  
15 further into the neck-shaped portion 4 along arrow 20, one of the connecting wires, according to figure 2 connecting wire 11, is bend just on the outside of the transverse wall 16, should be partially adjacent or parallel to this outer transverse wall. Thereafter the conductor wires are connected to the lamp cap contacts 8,9. The lamp cap is put in place using the bits 17.

Assembly according to the invention saves costs on components and  
20 assembling costs.

Part of the invention is the recognition of the conductor wire to be strong enough to secure the light source position. Also part of the invention is to replace welding or clamping by bending during assembly.

Other embodiments for a reflector lamp according to the invention are  
25 possible. It is possible to use only one opening in a transverse wall. It is possible to use separate wires from the light source or burner for connecting to the lamp cap.

## CLAIMS:

11. 11. 2002

(94)

1. Process for assembling an electric reflector lamp comprising:  
moulding a hollow reflector body having an optical axis and having a neck-shaped portion with a transverse wall provided with at least one opening;  
providing a light source, and arranging the light source in the reflector body;  
5 electrically connecting the light source to a lamp cap provided with contacts with a current conductor comprising a pliable material, running through the opening in the transverse wall;  
characterized by,  
securing the position of the light source in at least one longitudinal direction  
10 by bending the conductor around at least a portion of the outer transverse wall.
2. Process according to claim 1, characterized by securing the position of the light source parallel with the direction of the optical axis with a mounting member.
- 15 3. Process according to claim 2, characterized by securing the position of the light source in the longitudinal direction by resting the mounting member on the inner conical contour of the neck.
4. Process according to any of the proceeding claims, characterized by, pulling  
20 the light source in the reflector neck.
5. Process according to any of the proceeding claims, characterized by bending at least one of the conductors in a sharp, e.g. nearby 90°, bend, to lock the light source in the axial direction.  
25
6. An electric reflector lamp comprising:  
a hollow moulded reflector body having an optical axis and having a neck-shaped portion with a transverse wall provided with at least one opening;  
a lamp cap provided with contacts and connected to the neck-shaped portion;

a light source in a lamp vessel with a seal, arranged in the reflector body and electrically connected to the contacts of the lamp cap by means of current conductors comprising a pliable material, running through the opening in the transverse wall;

5 a metal mounting member for securing the position of the light source in the optical axis direction, arranged around the seal of the lamp vessel, mounted in the neck-shaped portion,

a securing means for securing the position of the light source in at least one longitudinal direction

10 characterized by,  
said current conductor forming the securing means.

7. Electric reflector lamp according to claim 6, characterized by, a bending in the conductor so that the conductor is at least partially adjacent to the outer transverse wall.

15 8. Electric reflector lamp according to claim 6 or 7, characterized by, the conductor comprising a deformable material.

9. Electric reflector lamp according to any of the claims 6-8, characterized by a sharp nearby 90°, bend in the conductor.



ABSTRACT:

EPO - DG 1

11. 11. 2002

(94)

Process for assembling an electric reflector lamp comprising:  
moulding a hollow reflector body having an optical axis and having a neck-  
shaped portion with a transverse wall provided with at least one opening;  
providing a light source, and arranging the light source in the reflector body;  
5 electrically connecting the light source to a lamp cap provided with contacts  
with a current conductor comprising a pliable material, running through the opening in the  
transverse wall;  
wherein,  
securing the position of the light source in at least one longitudinal direction  
10 by bending the conductor around at least a portion of the outer transverse wall.

Fig. 2

11. 11. 2002

(94)

1/1

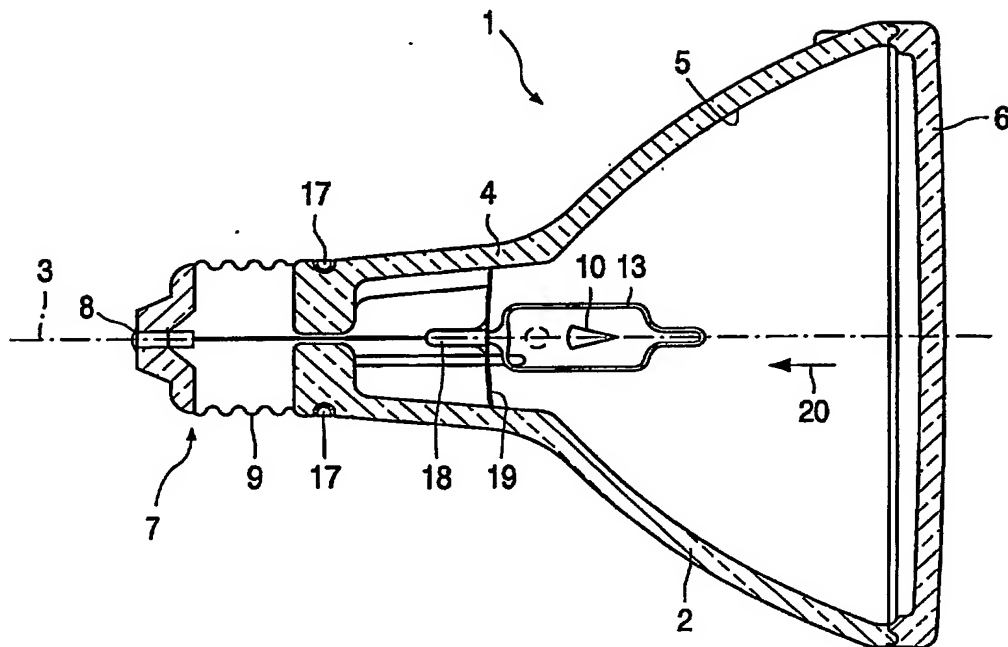


FIG. 1

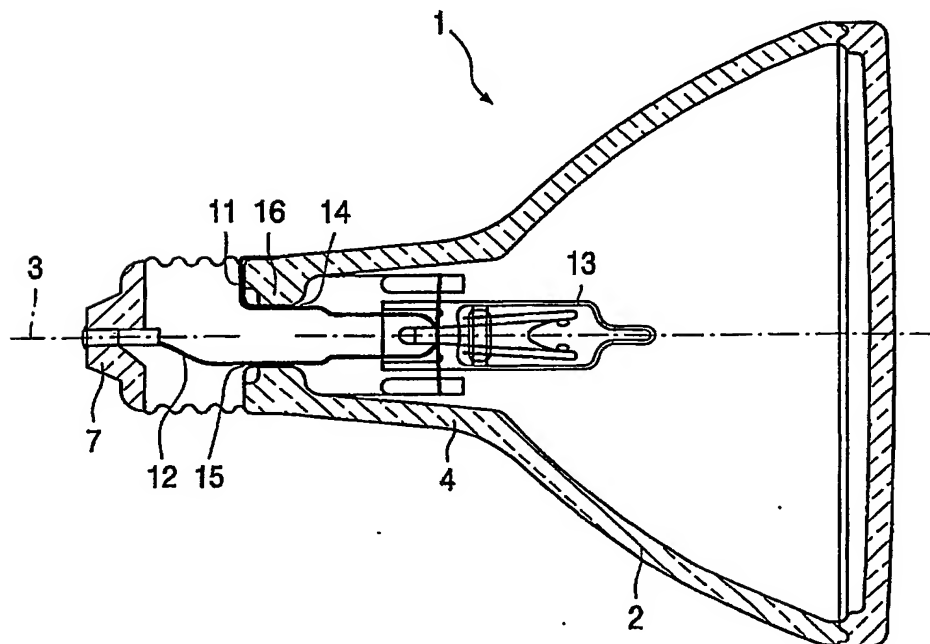


FIG. 2